MAGAP
برنامج تقدير موارد الثروة المعدنية والبترولية والمياه الجوفية
MINERALS, PETROLEUM & GROUNDWATER ASSESSMENT PROGRAM

To: Project Officer, S. Arif

From: Project Coordinator, D. T. Snow

Subject: Bimonthly Report for period Jan. 23, 1984 to Mar. 23, 1984

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AID Project 263-0105
Egyptian Academy of Scientific research and Technology
Desert Research Institute
Egyptian General Petroleum Corporation
Egyptian Geological Survey and Mining Authority
Remote Sensing Center

Your Ref.	Our Ref.	Date

Attached Bimonthly report is submitted herewith.

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Egyptian Geological Survey and Mining Authority

Task I Regional Mapping

Map editing bottlenecks persist: the Wadi Kuffa and Ras Benas 1:250,000 sheets have been delivered by the editor but some geologic details remain unsettled. The Wadi Qena Metallogenic map is finished and ready for press. Paper for that map, ordered through Bendix, has not been delivered, causing undue delay. Four 1:500,000 sheets of NG-36 are almost completely compiled, pending checking. The geologic compillation of 1:1,000,000 sheet NF 36 is likewise almost done.

The mapping program has gotten a boost recently from the SIR-A imaging of river systems in the Southwestern Desert. This is an area where much help is needed to finish the mapping.

The best news is that Cartography now has two trainees and has assurances of 3 more tc start soon, thus fears of losing AID's large investment in training may be unfounded.

Drafting of all papers for Annal No. 13, as well as editing, is complete. The contract printers are finding difficulties with type-setting because their best English language person has left. It is feared that as too many cycles through editing are necessary to correct type-setter's errors, the relationship between EGSMA and the printer could break down, causing further delays.

Task II Geophysical and Geochemical Studies

The aeromagnetic and radiometric survey field work has been completed. When area II work ended, it was found that 2,100 line-kilometers remained in the contract commitment. An additional area, IV, was subsequently flown to provide both AM and radiometry of the E. Oweinat region of the Southwestern Desert. This area is currently under study by GPC for water resource development, thus basement information will assist in geophysical studies of the structure. A further criterion of site selection was the relatively short period needed to obtain military flight clearance in that area, as opposed to an alternative area nearer to Abu Simbel favored by EGSMA for its mineral potential. A recent field trip to the area has shown the writer that the Safsaf-GPC camp area includes similar Precambrian basement geology, essentially unmapped and potentially unmineralized. Although aeromagnetic and radiometric coverage of the vast E. Oweinat area was not dense, it could disclose some interesting data, particularly to give evidence of some regional fault structures that have been hypothesized by GPC from seismic profiles.

Dr. Bahaa El Hakim of EGSMA returned March 3 from 6 weeks in residence at Aeroservice headquarters in Houston, learning their processing methods. Dr. William Hinze of Purdue University has been hired by AID as a consultant to provide quality assurance in the Aeroservice contract. He will travel to Houston each month during the next 18 months, and to Egypt twice.

With the contracting of Woodward-Clyde consultants for Lake Nasser seismic studies, EGSMA geophysicists are engaged with them and with Helwan Institute in the implementation of microearthquake monitoring in the Aswan area, and EGSMA geologists will be accompanying the consultant in all phases of field work, including regional seismicity, fault studies, geology, geomorphology and hydrology.

An IP resistivity survey across Wadi Samra in South Sinai was completed to search for conductors related to copper mineralization found along both edges of the valley. They have discovered a significant-looking anomaly indicating mineralization under about 7 m of alluvium. Further geophysical work will preceed drilling.

Geochemical work (whole-rock sampling) has been completed at the Wadi Kat area, and in an area W. of Abu Simbel, both for copper distribution. At the latter, a large area was found to have high copper content, up to 8000 ppm. At Talaat Godalla and Dongash, regional sampling programs have produced about 3800 samples for gold assaying, along with geologic maps of the mineral districts.

It has been learned that none of the geochemical surveys by EGSMA normally include field determinations, but rather, all samples are sent to Cairo for analysis. This results in long delays (up to a year) in detection and delineation of anomalies. Conventional geochemical methods are not employed for lack of the simple facilities needed for field analysis. Consequently, the number of samples analyzed has to be enormous, and no logical progressive field detection can be done, as is the case when guided by field analysis of pathfinder elements. It is recommended that MPGAP furnish training and materials to close the technological gap in geochemical prospecting, and that training be accomplished.

Anticipating a large number of anomalies from the aeromagnetic and radiometric surveys of the Eastern Desert, Bahariya and E. Oweinat, the Geological Survey will have a correspondingly great task of field-checking to be done. A comprehensive plan is being drawn up for cataloging and classifying those anomalies, laying out a program for systematic field checking by a multi-disciplinary team, consisting of economic geologists, geophysicists and geochemists. Field determination of some chemical parameters may be desireable in some cases to pinpoint anomalies and to identify their chemical causes.

Plans are being made by EGSMA for proper storage of the 30,000 large documents to be received from Aeroservice Co. by mid-1985. Two rooms have been earmarked for construction of racks for flat and rolled sheets. The 275 magnetic tapes will be stored in air-conditioned spaces in the National Computer Center on Salah Salem, Nasr City.

Task III Economic Viability and Estimation of Potential Resources

Potash exploratory drilling is continuing, along with the study of new and additional geophysical logs from oil wells along the Gulf of Suez. These have suggested two shallow occurrences of radioactive saline deposits within the depth limitations of EGSMA drilling capabilites. One of those, selected for the first drill hole, lies S. of Ras El Behar. Coring has penetrated halite beds at 170 m depth, and has continued to 320 m without encountering sylvite. The ore is expected in the 400-500 m range. Brine- based drilling mud, being used for the first time by EGSMA, is proving effective in eliminating core loss, as they are reporting 100% recovery in halite. The potash target is being approached cautiously, and we expect news of discovery soon.

A second shallow drill-site at Ras El Behar has been selected, where potash is believed to occur at about 300 m. The No.1 hole is scheduled for completion by June 30, but we hope to justify the second hole on the basis of a good discovery.

Gold explorations have been conducted according to plan at Umm Rus and Atud, where work parties have been camped and doing geologic mapping since October. At Atud, consultant H. Godbe found reason to suspect the existence of a second vein parallel to the Main Vein. Surface and subsurface mapping has since proved this to be correct. Mining in previous compaignshas been done on both veins, but reported as one. Actually, the two are continuous,2-3 apart. The gold content of the intervening rock becomes vital to the evaluation , and this zone will be drilled and assayed in coming months. It can have a decided influence on the workability of the mine, already considered attractive for its reserves developed solely for one vein. Defining the thickness and grade of ore and wall-rocks by subsurface drilling has to be high priority work in coming months. Reserve calculations must be redone. The underground work will continue through the summer, being uninfluenced by surface conditions.

At Umm Rus, work has been done to rehabilitate the shaft, so as to gain access to the second level. There is no report of other progress. A drill rig is set up there, but it is inactive for lack of trained crews. We are seeing the effects of years of inactivity since the 1960's.

The Talaat Godalla and Dongash exploration parties have collected about 3800 samples for gold assaying. These have been sent to Marsa Alam for crushing and splitting, to be sent then to Cairo for AA spectrometry and fire assaying.

Consultant H. Godbe detected inconsistency between assays of Barramiya ore run by flame spectrometer vs. fire assays. The report of 1983, which downgraded Barramiya tenor from roughly 6 gm/ton to 2 g/t by spectral analysis is believed to be in error. 1400 duplicate splits from that 1979-1981 period of exploration are found stored at Marsa Alam. About 150 random samples from that group will be rerun by fire assay at Cairo, to check the grade of ore. A revision of the 1983 report may be in order. This is important, as Barramiya contains the most significant of Egypt's known gold reserves, and several companies are either negotiating or have expressed interest in the deposit.

In addition to advising the field parties, Mr. Godbe has devoted nearly two months to study of the gold mines and EGSMA's means of study. He has written a consulting report on Barramiya, and an evaluation of an investor's proposed plan of development of gold mining. In the first case, he corrected a serious evaluation error, as mentioned, above. In the second case, he pointed out the ways in which investors can take advantage of EGSMA's lack of experience. Both cases are excellent tools to teach modern evaluation methods, and they serve to guide the expert's teaching in the practical problems facing the geologists here. Mr. Godbe's experience is proving valuable, and we look forward to his short course. In the meanwhile, he will be teaching underground mine-mapping techniques, and providing informal consultations on some other mining areas, including glass sand and kaolin.

The gypsum evaluation project has made progress during the reporting period. The EGSMA drill rig established at Gemsa completed 6 holes in profiles across the peninsula. The object was to drill to sufficient depths, extracting core for study and evaluation of the deposit. At this writing, all holes have been completed, with excellent core recovery. One drill hole site near the shore was abandonned in favor of another because deep alluvial fill was encountered. Maximum depth attained was 40 m. Overburden was found to be only one or two meters of gravel in most cases.

The stratigraphy proved unfavorable for conventional exploitation of the deposit. The evaporites are interbedded with clay beds, some attaining nearly 4 m thickness. Furthermore, the impervious clay beds may have been the cause of irregular and incomplete hydration, for the gypsum has been found to be very shallow, and intercalated with anhydrite. Anhydrite predominates, below the first bed intercepted. DTA and chemical analysis of 9 spot samples from the cores revealed a maximum concentration

of 62% gypsum. Though the 4-7 m bed thickness encountered would be mineable, this rock quality is not adequate for sales to either the plaster of Paris or cement industries. Other uses are being considered.

All cores are now at the Dokki laboratory for more thorough analysis. The boxes of core will be stored at Abbassiya.

The cores have revealed details of crystalline structure and sedimentary lamination and bioturbation with clay admixtures. An abbreviated program of analysis will be all that is required, including about 20 DTA tests, followed by spectrometric analysis of a limited number.

One possibility to be explored by the Survey is that the stone has architectural value. Some beds are strong, homogeneous and unflawed, so may be attractive slabbed for wall tiles. It will not wear as flooring, but it can be competetive because it can be gang-sawed more easilly than marble. Compression tests on small cubes will be run to identify the most competent beds for possible further physical tests.

I propose that tests be run to investigate the usefulness of the white amorphous anhydrite mantling surface outcrops to many meters depth. Such material was not found at Gemsa in drill cores. Samples from Gebel Zeit could be finely ground (2μ-4μ) and tested for use as a white paint extender, or for other inert filler applications. The cost of production would be very low.

Additional drill sites will be selected upon a subsequent field trip, to investigate gypsum possibilities at Gebel Zeit and at Abu Ghousun. An additional hole may be drilled at Gemsa for core samples of any beds found to have potential use for architectural purposes.

In the area of mineral contracts, no progress in known. The AGRICO (sulfur) agreement is stalled on the price GPC is to charge for natural gas. Minex has not yet returned to finalize the (gold) exploration and development concession, though accounts of agreement have been publicised in some magazines. The model concession agreement written by EGSMA is still under study, though MPGAP has not contributed recently, since submission of a written critique covering many aspects of the model agreement.

Issues of several mining and petroleum magazines are being received for MPGAP,

EGSMA and library use. These are proving valuable in leading us to prospective investors and technological advances, and to bring us up-to-date in marketing, exploration and mining developments around the world. Cooperative efforts with UNDP have been proposed, and the ongoing project of EGSMA, NASA and USGS has recently produced evidence of a new area of mineral potential in the Southwestern Desert.

Task IV Upgrading the Analytical Laboratories

The RFP on equipment has been stalled in AID/Cairo for several months. After several recyclings of the X-Ray diffractometer and fluorescence unit specifications, it was believed to be satisfactory. Only recently, a further complication has surfaced, objection being raised by EGSMA over omission of the data processing unit (computer) from the latest version. In actuality, all modern X-Ray devices on the market have a computer installed. Several more months will probably be required to complete the purchasing process. It is clear that no steps can taken for granted as automatic. In this case, no further expenditures of this sort can be entertained until the Ministries of Industry and of Petroleum can resolve a $4.8 million disagreement over whose budget is to cover the major part of the Aeroservice contract, i.e., that part belonging to Area II.

Two trainees have been sent to Beloit College for X-Ray diffraction and scanning election microscope training. The analytical laboratories of EGSMA will ultimately receive the former equipment, while at the National Research Center, the latter is available for their use. The timing of returning trainees is no longer related to the expected receipt of equipment.

Task V Geological Museum

Having heard testimony that contradicts the optimistic projections of display completion and museum occupation expressed in my report of November 23, 1983, I have visited the future museum on the Corniche in Dar El Salaam. The exhibit hall is large (about 25 m) with intermediate pillars on the ground floor of a school. Newly installed overhead spot-lighting fixtures may prove adequate. A smaller (5 X 25 m) adjoining room is to house the museum library. This constitutes about half the floor area of the former (Midan Tahrir) facility. The mineral, meteorite and fossil collections to be displayed are in substancial wooden boxes, or in reinforced racks of drawers, stacked between the columns of the hall and between rows of old display cases. Efforts were evidently made to store those items in orderly array, though the great amount of material present will hamper the work of refurbishing the displays. Much of the collection is reportedly stored in a smaller room at Fayoum. Much could be done with

present materials and staff at Dar El Salaam (numbering about 12) but all efforts have been stopped for lack of direction. All display cases need overhauling. An organized plan for the layou of the displays, and progressive steps to implement such a plan is vitally needed. I have no doubt that the crew of professional and non-professional museum staff people are eager to restore order to their work. environment and to restore a semblance of the museum's former grandeur and utility. Unfortunately, the former director has been relieved of his post and no successor has been apponted. It is to be hoped that a quick resolution of the leadership problem can be reached, so that progress may resume.

Evidently, lack of funds are also hampering work towards completion of the Corniche facilities. A single-story, prefabricated building of about 20 x 20 m has been erected, containing nine rooms for laboratory and office use. Interior finishing, including water and power installation has been interrupted. This will ultimately become a functional modern laboratory. Exterior work, involving some earthmoving, stairways, walks, parking and landscaping must also be done before the public can use the museum.

Though MPGAP's contribution to the new museum has been small, interest remains high from this quarter. The training received by Mr. Raggi Eissa at geologic museums of Duke University, the Smithsonion, University of South Carolina and American Universit in New York represents an investment not to be wasted, whereas it would be hard to find another qualified person to provide the necessary technical direction for arranging modern displays.

Task VI Mineral Commodity Program

Consultant Harry Godbe, assisted by two EGSMA geologists, is abstracting internal reports on the many gold deposits. These may be added to our Mineral Summary of Oct., 1983, and thereby made available for distribution to potential investors.

A plan for drafting a text-book on non-metallic commodities has been launched by P.C. Four trainees from EGSMA attending Ted Eyde's specially-prepared field and lecture course in USA will assemble notes from over 40 localities and about 20 commodities. These will be written in text from upon their return to Egypt. We envision a publicatio of considerable utility to the Egyptian industrial-mineral industries.

Mineral import/export data is being received in many published forms, thanks to efforts of BFEC/Grand Junction, but assimilation in computer-retreivable form is at a standstill. It was envisioned that it would be work to fill odd hours of secretarial time, but because the Project Coordinator has been unsuccessful at filling the post, the objectives remain unfulfilled.

Collaborative work with the United Nations Development Project has been discussed at EGSMA. One area suggested by P.C. is to utilize their minerals contract expert, Mr. Wälde. His services were offered by Dr. Harkins, former director of the UNDP Minerals Program. Mr. Wälde could guide EGSMA in revisions of the model concession agreement, so that it might contain the more successful elements of agreements drafted in other developing countries. It is hoped that EGSMA's decision to defer seeking UN project funds for exploration work will not also defer the use of such timely help as their contract expert may provide.

Task VII Publication and Documents Center

Since L. Stout joined the MPGAP staff in September, 1983, his principle vehicle of instruction in editing has been the processing of a backlog of papers for Annal No. 13. EGSMA assigned an experienced geologist, Mr. Fakhry Labib as editor, and two trainees, Mr. Edward Matter and Mr. Ehab Abd El Badie. They have completed the work and turned over the finished manuscripts to a printer for type-setting. It includes nineteen papers of diverse subject matter, processed with high standards, and two unfinished.

During March, 1984, the staff was reduced by assignment of Mr. Fakhry to a post in Fayoum, by court order. Mr. Edward voluntarilly returned to his former post in Cartography. EGSMA is powerless to control such staff changes. Mr. Raggi Eissa, Curator-under-suspension, was assigned to editing, but since it is temporary, provides no effective staff. Mr Stout and I have appealed for action to raise the prestige, pay and calibre of the office, by assigning a senior geologist and some qualified assistants to restaff the editorial office. At this time, we know that the Geological Survey is working to solve this problem, and that they are aware that the publications, documentation and editorial training portion of the MPGAP cannot succeed without the necessary personnel. Mr. Raggi Eissa's assignment to editing duties will not help that activity. Rather, it damages the prestige of editing as a profession by assigning someone to duties he cannot enthusiastically execute.

Desert Research Institute

Task I Groundwater Exploration

Drs. Mizak, Attia and El Ramley and staff have been active in their explorations for water resources in the southeastern desert area around Marsa Alam. They conducted an inventory of all water points, a review of published and unpublished geology, and have completed reconnaissance study of the geomorphic evolution of the wadis and coastal alluvium. They have also inspected the coastal sediments for potential aquifers . The bedrock geology, especially fault zones, are attractive exploration targets, as they find that many of the persistent wadi wells coincide with one or more faults in the bedrock. For that reason, DRI has engaged as consultants two of Egypt's geologists with most extensive experience with Precambrian structural geology in the Eastern Desert, namely, Drs. E. M. El Shazly and M. F. El Ramley.

The AID-provided jeeps and carry-all have been in continual use in the Eastern Desert. They had to replace the original tires with locally-manufactured heavy-duty tires suitable for the rough, rocky terrane. Specified for desert use, the sand tires provided did not stand up. The services of EGSMA garage facilities at Marsa Alam have been valuable, as have other logistical arrangements provided under contract.

DRI geophysicists have begun their work of resistivity soundings to determine depths to water and bedrock in wadi fills. Contract drilling, using EGSMA rigs, is scheduled to begin in April, in sites selected to benefit Umm Rus, Atud, Wadi Igla and Marsa Alam.

Task II Data Organization and Analysis

Data collected this season in the Eastern Desert has been handled with conventional paper records. Two meetings have been held with GIT staff, for the purpose of combining DRI's computer acquisition with the completed GIT bid. Lower prices should result.

Remote Sensing Center

Task I Data Organization and Analysis

The Center is to expand its spaces to occupy most of the 7th floor of the Academy of Science Building, and is currently remodelling in preparation for installation of new processing equipment to be acquired under the Wimvex contract.

Task II Production of Atlas

In spite of everyone's efforts to get the ERIM contract signed, it is still stalled in the Bendix and/or ERIM offices at this time. The entire program of training and Landsat image production is delayed at least 4 months.

Collaborative efforts with GPC and the Berlin Technical University as well as Conoco, Inc. and the Egyptian military will provide some of the necessary ground control for image processing. No satisfactory proposal for completing the ground work has yet been written by Bendix or RSC.

The contract with Wimvex, Inc. has been signed by AID, but not as yet by RSC, though it is expected that it can be executed quickly to get the hardware and software procurement under way.

Task III Remote Sensing Workshops

Plans for conducting the workshops remain unchanged except for an open date of commencement of the instructor training and for the subsequent courses.

Task IV Aerial Photography

Contract negotiations between RSC, EGSMA and AID for the planned completion of 2500 km^2 of aerial photography have undergone many modifications, without completing the process.

Apparently, the original area near Baharriya Oasis is no longer desired by EGSMA, since good coverage at 1:20,000 scale has since been made by the US/Egyptian military forces. A window in the otherwise-complete air-photo coverage of Egypt was then identified. After EGSMA conducted several searches of military coverage, an area of 13,000 km^2 west of Asyut was nominated. RSC indicated it could complete and process geologic-grade photography, using its twin Beechcraft that has recently arrived from

France after a major maintainance routine. The Center's aerial camera that will be used in this job has been calibrated and renewed by the manufacturer in Switzerland and is now installed and ready for operation. The cost estimate was $69,000, considerably above the budgeted $40,000. RSC prepared specifications, using appropriate portions of the USGS model specs, and EGSMA ultimately adopted them to their needs. Basically, only geologic-grade products are needed, minimizing the control and camera criteria usually required for cartographic grade photography. A corresponding reduction in the level of quality assurance was agreed upon, to utilize on-board Bendix and EGSMA staff.

It then developed that the area designated exposes only monotonous Eocene plateau limestones, and the mapped geologic contacts would not be changed materially by application of photographic coverage. EGSMA is therefore looking for an alternate area where new photo coverage will provide a definite benefit to the work. The original intention of testing RSC capabilities is embodied in the notion that their contract will be for geologic-grade product that they can safely contract to complete, whereas they will demonstrate cartographic-grade capability by providing a higher-calibre product that can be tested by a competent outside consultant.

Egyptian General Petroleum Corporation

a. Aeromagnetic study in the Eastern Desert

The last few 1000 km of flight-line flown out of Aswan were slow to be completed. largely because the Khomasein period of windy weather hampered navigation in the mountainous Eastern Desert. By April 5, however, Area II magnitometry and radiometry, as well as the new Area IV at E. Oweinat have been completed. Reruns have been completed in Area II. Processing at Houston is proceeding on schedule. Dr. William Hinze, quality control consultant has made one inspection and report on the Aeroservice Company's work at Houston. One unresolved problem has arisen: Dr. Wim Shur, deceased leading geophysicist, has not yet been replaced by a suitable full-time expert in the Aeroservice organization.

b. Seismic study in the Eastern Desert

h. Stratigraphic study (Drilling) in the Eastern Desert

No progress; both are sequel to a.. Basement interpretation work for Area I was supposed to have been delivered by mid-March, though actually scheduled for a later date. When available, the Project Manager and his committee will be able to study the evidence of basement configuration. If the depocenter is adequately defined, the location of a stratigraphic test-well may be decided. Other considerations may enter the decision to pursue or abondon the plan for intermediate action, namely to contract for seismic refraction studies of the basin prior to, or in lieu of drilling. Before a decision to seek IFB for either works, adequate advertisement and opportunity should be afforded all potential oil company concessionaires, especially Esso, to consider taking acreage on the unappropriated portions of the defined basin.

c. Seismic Data Storage System and Data Library

No decision made, though communications with several agencies have been made that may contribute to the long-range program of training. The basic problem is that no one on the EGPC staff is qualified or designated to work on computer-based data filing of all petroleum-exploration data, thus the Project Coordinator is reluctant to suggest that it is time for specialists to come from the US to assist in planning a program. An expert cannot work in such a vacuum.

The recommended path to acquiring an EGPC data system staff is to build upon the GPC training program. They started in 1983 with 13 geologists and engineers enrolled in an in-house course to acquaint them with the nature of well-data as well as

Fortran and Cobal languages. All EGPC students dropped out the program. Subsequently, a consultant from France, Standardata, was hired to teach the storage and retreival of typical well-data, and to build software appropriate to GPC. They have since been training on 60 wells, and will ultimately enlarge coverage to all fields controlled by GPC or worked in collaboration with other companies. Standardata has finished all software, and remains available for consultation for 6 months.

The Project Coordinator suggests that a new class of trainees be introduced to computing and petroleum-based data handling. The El Ahram training course P-2 would be an appropriate sequel to the in-house course, which Mr. Nazier Abdel Moneam is willing to supervise. It could contain an equal number of GPC and EGPC staff. The existing GPC staff could be split, roughly half transferred to EGPC to form a nucleus upon which they may build. Both staffs could later be augmented by the new class of trainees. At this time, four EGPC men are scheduled to begin P-2 on July 14.

An alternative favored by Dr. Hantar is to hire an expert to supervise and train a brand-new EGPC staff. I feel this would take at least one to two years more than the plan I recommend, i.e. to build on the GPC staff. One candidate supervisor has been contacted: Mr. Hussein El Shazly, a Ph.D. candidate at University of South Carolina. He is already expert in computing and petroleum information handling. Though he is interested in a position, it is not likely that he would accept our terms, since he wants to have a salary as an American consultant, yet must accept salary as an Egyptian citizen since he holds an Egyptian passport.

We have received a great deal of interest and willingness from the U.S. geological Survey, whose Branch of Petroleum Geology has extensive experience with data management. Mr. Charles Masters visited EGPC last Fall, and offered the services of Mr. Magoon of Palo Alto, whose group has had charge of data acquisition from the North Slope, Alaska fields. They have spent $10 million and 7 years acquiring software and expertise, utilizing the Petroleum Information Corp. of Denver as consultant. At this time, Mr. Magoon cannot travel to Egypt to help us plan a program, but would help us train some competant specialists in their short-courses, if we had them to send. Ultimately, I hope we can make good use of the GAS (Geological Analysis System) programs, which may represent the state-of-the-art. I cannot see any advantage of a visit by Mr. Magoon until there is someone, or better still, a staff of people, trained sufficiently to relate to the sophisticated offering of the USGS.

d. Source Rocks/Oil Migration in the Western Desert

e. Sedimentary/Petrographic Study in the Western Desert and the Gulf of Suez

Apparently, these projects will not find favor in EGPC until new conditions develop, such as pipelines to stimulate exploration, Money earmarked for these areas can probably be diverted into EOR, which is the wish of the new Chairman of GPC, Dr. Hussein Kamel.

f. Estimation of Existing and Potential Oil and Gas Resources in the Gulf of Suez

Private funding for this study, favored by EGPC because it would facilitate access to priviledged information, has not yet been assured. It may otherwise be a candidate for AID funding.

g. R & D Feasibility Study of Tertiary Enhanced Oil Recovery

The P.C. has written a position paper that makes a strong case for AID funding of EOR work in Egypt. It can revolutionize oil production practices of Egypt and have a major impact on exports and longevity of oil fields. After studying the state of EOR technology and consulting with AID and EGPC, as well as with GPC and private-sector reservoir engineers, it has been decided that the first step should be to utilize our budgeted funding for a consultant's study of EOR feasibility of the Bakr Oil Field, Gulf of Suez. It may require more than our budgeted amount to design a pilot project to stimulate production of the viscous oils undeveloped in that field. Success of the steam-drive soon to be started at Ras Gharib will give impetus to a Bakr Field program, or a similar drive at Kareem Field. Mr. Hamdi Duwick, GPC reservoir engineer, is writing the statement of work, intended for prompt issuence as an host-country IFB.

i. Training Equipment, Ras Gharib Training Center

After extensive review of specifications for a variety of teaching tools, GPC opted to cancel all items except a Drilling Platform Simulator, likely to consume the whole budget of $175,000. The Project Coordinator has worked with the GPC Training Dept. to write performance specs suitable to all. An RFP was advertised in CBD by AID, resulting in three proposals received by the closing, March 29, 1984. Simitran and Digitran devices were proposed. A committee has been formed by GPC, first to establish acceptance criteria, then to evaluate the proposals. All are conditionally acceptable, pending answers to queries. P.C. is paralleling all phases of the committee work. An RFB will be ready for issue, probably about May 1. With 60-day delivery, the device could be installed during August, if all goes smoothly

Project Coordinator Activities

In March, a 2-day field trip to El Gedida Mine and the Bahariya Oasis was taken by geologists Lepley, Stout and Snow, together with the Egyptian Geological Society. Of interest to MPGAP is the prospect of including barite, undeveloped resource of that mine, within the offerings of potential interest to investors. Course crystalline barite of high purity occupies up to 10% of several meters of ground underlying the ore. Thus it could be removed at little cost following iron-ore mining, beneficiated by gravity and washed to provide the $100 million worth of barite imported annually into Egypt for drilling fluid weighting. It has export potential of greater value. Yet, no private or public sector enterprise has taken the opportunity of exploiting this ore.

The field operations of DRI have been subject of several conferences with Drs. El Shazly, Misak, El Ramly, Soliman and Himeda. The commodity acquisitions, especially the drill rig, have been slowly advanced towards IFP during this reporting period. Of special importance was an agreement reached with DRI to guarantee the expenditure of minimum funds for building machine-shop facilities, so as to minimize dependence upon future maintainance contracts.

None of the company representatives expected during this reporting period have visited the Geological Survey. Correspondence has been maintained, however.

Since arrival of the American contingent of the USGS-EGSMA expedition to the Western Desert, the Project Coordinator has devoted a significant part of his time to liaison activities. Drs. Jack McCauley, Carol Breed, Maurice Grolier, Jerry Shauber and Bill McHugh convened in Cairo, organized their work with Egyptian Geological Survey staff, and proceeded to the E. Oweinat area via Kharga, where they joined Dr. Vance Haynes. The Embassy Science office and Resident Project Director Lepley also assisted with arrangements, especially after Dr. Grolier returned to Cairo for an emergency appendectomy. On March 8-11, Snow flew to GPC camp at East Oweinat, and by jeep to the USGS-EGSMA camp at Bir Safsaf. There, test trenches confirming alluvial gravels in channels delineated by side-imaging (shuttle based) radar images were inspected, and a vast area of Precambrian metamorphic-granitic terrane veneered by shallow sand cover was toured. Possibilities for exploring these unstudied areas for mineralization and groundwater have been described by PC in memos and an advertised public lecture given at Abbassia, April 4. Continued MPGAP, EGSMA and GPC involvement in the SIR-B shuttle mission has been encouraged by the scientific achievements already evident and expected.

A program of potential collaboration between EGPC and the Petroleum Research Institute was discussed with its Exploration Manager Kholeif, and a CIT proposed for training at the National Petroleum Research labs, Bartelsville, Oklahoma, has been sent.

Problem Areas

Reorganization in EGSMA has taken place upon Dr. Bihai Issawi's suspension from duties as Director and Project Manager. Mr. Ibrahim Kamel, Chairman of El Nasr Company for Minerals and Refractories has assumed the post of Chairman of the Board of EGSMA. Dr. Atif Dardir was appointed MPGAP Project Manager. A committee formed to administer the work of the Survey has proven itself responsive to MPGAP needs, though its activities are of necessity slower than former administrative proceedures. Furthermore, it seems evident that progress, as in the case of the Museum work described previously, may have been impeded by transition of leadership.

The editiorial staff has been decimated in recent weeks. Resident Editor Stout is left with no trainees. Insofar as his objective is to develop a staff of Egyptian editors, not to be an editor for EGSMA, his efforts, skills and the project expenditures are mostly wasted. Appointment of trainees and supervisory level editorial staff is urgently needed. More fundamental changes in EGSMA organization and priorities must be made if they are to succeed in maintaining the Survey's prestige through professional-quality publications. Mr. Stout has described these problems in memoranda, and they have been discussed with the Survey staff.

Contractor Performance

With logistical support established, good progress in training program handling has been made, and Lepley has had time to get into more productive work with RSC, DRI and EGSMA, setting up regular meeting-days with each. He has also been to the Sinai and Eastern Desert to review EGSMA field work, and has established liaison with UNDP, Conoco and other agencies active in exploration.

The Grand Junction office has been responsive to all kinds of requests, including literature search, library procurement and commodity purchase as well the main job of arranging training facilities and consultant services, together with the logistics of travel and subsistence for all program participants to or from US.

The first MPGAP Newsletter was finally published in February, but the required bimonthly schedule has not been met. Distribution of 1750 copies by mail from Egypt and US has not yet produced the desired investor response. More specific topics (discoveries of bonanza proportions) would enhance the Newsletter's reception.

Bendix has made several unsuccessful attempts to schedule the Semi-Annual MPGAP meeting. Though several dates in succession have been proposed, there prove to be so many interested agencies and ministries that a date acceptable to every one cannot be found. As a final resort, the P.C. decided to take the initiative of announcing Monday, May 21 as the date of the first meeting, at a time and place to be announced. This seems to offer a minimum of conflicts for a time when most participants can contribute as well as attend.